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10/065,772	11/18/2002	Hwang Choe	24-NS-6042	2406

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EXAMINER

RICHARDSON, JOHN A

ART UNIT	PAPER NUMBER
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3641

DATE MAILED: 12/22/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

# Office Action Summary

Application No.

10/065,772

Applicant(s)

CHOE ET AL.

Examiner

John Richardson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 27 March 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-27 is/are pending in the application.
- 4a) Of the above claim(s) 23-27 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

## Priority under 35 U.S.C. §§ 119 and 120

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 13) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application) since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.  
a) ☐ The translation of the foreign language provisional application has been received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121 since a specific reference was included in the first sentence of the specification or in an Application Data Sheet. 37 CFR 1.78.

## Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_ 6) ☐ Other: \_\_\_\_\_

**DETAILED ACTION**

***Non Final Rejection***

1). Applicant's election with traverse of Group I, and species S, in Paper No. 5 is acknowledged. The traversal is on the ground that the examination of that there would not be a serious burden in examining other groups and species. This is not found persuasive because the applicant has not has not submitted evidence or identified such evidence now of record showing that the species to be obvious variants or clearly admit on the record that this is the case. In addition it is noted that the process as claimed by the applicant could be operated in a manner wherein the flow rates in all the reactor cores regions is for example, identical.

The requirement is still deemed proper and is therefore made FINAL.

2). Claims 23-27 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected species, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No.5.

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3). The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4). The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

5). Claims 1 to 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "**said flow channels**" in line 6. There is insufficient antecedent basis for this limitation in the claim.

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6). Claims 1 to 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "**the coolant flow**" in lines 8, 9. There is insufficient antecedent basis for this limitation in the claim.

7). Claims 1 to 12 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "**said main coolant flow channels**" in lines 6, 7. There is insufficient antecedent basis for this limitation in the claim.

8). Claims 1 to 12 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: in line 6 of claim, the limitation is cited **so that the flow of coolant through said main coolant channels**. The claim does not provide the means by which coolant flow configuration is to be achieved.

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9). Claims 13 to 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 13 recites the limitation "**the coolant flow**" in lines 10, 11. There is insufficient antecedent basis for this limitation in the claim.

10). Claims 13 to 17 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are: in line 6 of claim, the limitation is cited **so that the flow of coolant through said main coolant channels**. The claim does not provide the means by which coolant flow configuration is to be achieved.

11). Claims 13 to 17 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites the limitation "**said main coolant flow channels**" in lines 8, 9. There is insufficient antecedent basis for this limitation in the claim.

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12). Claims 1 to 22 are rejected under 35 U.S.C. 102(b) as being anticipated by Patterson (U.S. 3,892,625).

The reference discloses an apparatus that is inherently capable of operating and functioning in the manner claimed comprising a nuclear power reactor core (item 2), a plurality of fuel assemblies (items 19), each of the said assemblies incorporating a flow opening / channel (items 20), a lower tie-plate /support structure (items 102), the said fuel assemblies arranged in a plurality of core regions (see Figure 1), and said core regions configured to specific core coolant flows (see for example, Column 3, lines 18-26), and each of the said fuel assemblies provided with flow orifice plates (items 31) and said orifice plates arranged in a detachable manner (see Column 5, lines 48-61).

Relating to claim 2, the said orifice plates are located in the said fuel assembly flow channel, relating to claims 3, 4, 9, 10, 22, the said flow orifice plates sized to maintain flow rates in the core regions depicted in Figure 1 (see Column 6, lines 24-47), relating to claims 5-7, 14-16, 19-21, the reference discloses that the variations between core region coolant flows that read on the cited claims (see Column 4, lines 40+, Column 7, lines 12-22), relating to claims 8, 11, 12, 17, the reference discloses that the said orifice plates are arranged to be detachably coupled to the lower fuel assembly structure (see Column 5, lines 48-62).

As to limitations which are considered to be inherent in a reference, note the case law In re Ludke, 169 USPQ 563, In re Swinehart, 169 USPQ 226, In re Fitzgerald, 205 USPQ 594, In re Best et al, 195 USPQ 430, and In re Brown, 173 USPQ 685,688.

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It is noted that a claim containing a "recitation with respect to the manner in which a claimed apparatus is intended to be employed does not differentiate the claimed apparatus from prior art apparatus" if the prior art teaches all the structural limitations of the claim. In re Masham, 2 USPQ2d 1647.

Claims directed to apparatus must be distinguished from prior art in terms of structure rather than functions. In re Danly, 120 USPQ 528, 531.

Apparatus claims cover what a device *is*, not what a device *does*. Hewlett-Packard Co. v. Bausch & Lomb Inc., 15 USPQ2d 1525, 1528.

As set forth in MPEP§ 2115, a recitation in a claim to the material or article worked upon, does not serve to limit an apparatus claim.

13). Claims 1, 2, 13, 18 are rejected under 35 U.S.C. 102(b) as being anticipated by Baxi (U.S. 4,303,474).

The reference discloses an apparatus that is inherently capable of operating and functioning in the manner claimed comprising a boiling water reactor (BWR) nuclear power reactor core (item 2), a plurality of fuel assemblies (items 13), each of the said assemblies incorporating a flow opening / channel, a lower tie-plate /support structure (item 42), the said fuel assemblies arranged in a plurality of core regions (see Figure 1), and said core regions configured to specific core coolant flows and each of the said fuel



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assemblies provided with flow orifice plates (items 15) and said orifice plates arranged in a detachable manner (see Figure 4), and relating to claim 2, the said orifice plates are located in the said fuel assembly flow channel (see Figures 2-3).

14). The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

15). Any inquiry concerning this communication or earlier communications from the examiner should be directed to John Richardson whose telephone number is (703) 305 0764. The examiner can normally be reached on Monday to Thursday from 7.00 AM to 4.30 PM. The examiner can also be reached on alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Carone, can be reached on (703) 306 4198. The fax phone number for the organization where this application or proceeding is assigned is (703) 305 7687.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308 1113.

John Richardson, PE,  
December 10 2003.

  
MICHAEL J. CARONE  
SUPERVISORY PATENT EXAMINER

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